

WHAT IS CLAIMED IS:

1. Apparatus for the absorption of torsional vibrations of an internal combustion engine, comprising an input shaft between the internal combustion engine and a transmission, and a drive shaft of the transmission, which is operatively associated with said input shaft, wherein each of the input and drive shafts includes a torsion bar that has a lower torsional spring constant than the rest of the shaft as a whole, wherein the apparatus further includes a rotating mass device on each of the input and drive shafts, and wherein the apparatus is disposed between the internal combustion engine and the transmission.
2. Apparatus according to claim 1, wherein the rotating mass devices include gears which are in engagement with one another.
3. Apparatus according to claim 2, wherein the drive shaft runs transversely across a longitudinal axis of the input shaft, and wherein the gears are bevel gears.
4. Apparatus according to claim 3, wherein the bevel gears include first and second hubs that surround the input shaft and the drive shaft, respectively, and wherein the apparatus further include first and second sets of driver teeth that are provided between the first and second hubs and the input shaft and the drive shaft, respectively.
5. Apparatus according to claim 4, further comprising a third hub for fixed gears of speeds of the transmission and a third set of driver teeth, the third hub being joined to the drive shaft by the third set of driver teeth.
6. Apparatus according to claim 1, further comprising a third hub for fixed gears of speeds of the transmission and a third set of driver teeth, the third hub being joined to the drive shaft by the third set of driver teeth.
7. Apparatus according to claim 1, wherein the torsion bars are formed by one or more cross-sectional constrictions of the input shaft or drive shaft.
8. Apparatus according to claim 7, wherein the cross-sectional constrictions are provided in the vicinity of the hubs of the bevel gear of the input shaft and of the fixed gears of the drive shaft.

9. Apparatus for the absorption of rotational vibrations of an internal combustion engine, comprising:

an input shaft disposed between the internal combustion engine and a transmission;

a drive shaft operatively associated with the input shaft, wherein each of the input and drive shafts is a torsion bar of relatively lower torsional spring constant when compared to the rest of the shaft in general;

a rotating mass device on each of the input shaft and drive shaft, wherein the rotating mass devices include respective gears meshing with one another, and wherein the apparatus is disposed between the internal combustion engine and a transmission.